AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended)   An apparatus comprising:

a medical device adapted to be inserted into an anatomy; and

a plurality of target markers disposed on a proximal portion of the medical device,

wherein geometric information for the plurality of target markers is stored in a magnetic

resonance imaging (MRI) system prior to insertion of the medical device into the anatomy, and

wherein the MRI system is unable to detect or will disregard MRI signals of the target markers

within the anatomy as noise without using the stored information for the plurality of target

markers to lower an MRI signal detection threshold of the MRI system.

Claim 2 (Original)   The apparatus of claim 1, wherein the plurality of target markers

comprise one of ferromagnetic and paramagnetic material.

Claim 3 (Currently Amended)   The apparatus of claim 2, wherein MRI signals of

the plurality of target markers are disregarded by MRI systems as noise operating between 0.2

and 5.0 Tesla.

Claim 4 (Previously Presented)   The apparatus of claim 1, wherein the medical

device is one of a fluid delivering catheter, a stent delivering device, a photographic device and a

balloon catheter.

Claim 5 (Original)   The apparatus of claim 4, wherein the medical device comprises a

polymer material.

Claim 6 (Original)   The apparatus of claim 4, wherein the medical device is

expandable.

Claim 7 (Previously Presented)   The apparatus of claim 1, wherein the orientation

and location of the medical device in relation to the anatomy is determinable based on the

location of the plurality of target markers in relation to the medical device.

Claim 8 (Currently Amended)   A system comprising:

a magnetic resonance imaging (MRI) processor, the processor including an MRI low-level signal detection process stored in a memory;

a MRI scanner coupled to the processor;

a control unit coupled to the processor;

a display coupled to the processor; and

a medical device adapted to insert into an anatomy, the medical device having a plurality of target markers, wherein geometric information for the plurality of target markers is stored in the memory prior to insertion of the medical device into the anatomy, and wherein MRI signals of the plurality of target markers within the anatomy are not detectable or disregardable as noise for MRI systems (a) without the MRI low-level signal detection process and (b) without using the stored geometric information of the plurality of target markers prior to insertion of the medical device into the anatomy to lower an MRI signal detection threshold.

Claim 9 (Original)   The system of claim 8, further comprising a pre-scanning device coupled to the processor.

Claim 10 (Original)   The system of claim 9, wherein the pre-scanner transmits one of a plurality of geometric data, a plurality of image data, and a plurality of geometric data and a plurality of image data of a medical device and the plurality of target markers to the processor.

Claim 11 (Original)   The system of claim 8, wherein the plurality of target markers comprise one of ferromagnetic and paramagnetic material.

Claim 12 (Currently Amended)   The system of claim 11, wherein MRI signals of the plurality of target markers are disregarded by MRI systems operating between 0.2 and 5.0 Tesla.

Claim 13 (Original)   The system of claim 8, the medical device is one of a fluid delivering catheter, a stent delivering device, a photographic device and a balloon catheter.

Claim 14 (Original)   The system of claim 13, wherein the medical device comprises a polymer material.

Claim 15 (Original)   The system of claim 14, wherein the medical device is expandable.

Claim 16 (Previously Presented)   The system of claim 8, wherein an orientation and a location of the medical device in relation to the anatomy is determinable based on the location of the plurality of target markers.

Claim 17 (Previously Presented)   The system of claim 8, wherein an image of the medical device is superimposed on an image of the anatomy, the superimposed image having the same orientation and location that the medical device has within the anatomy.

Claim 18 (Previously Presented)   The system of claim 8, wherein a plurality of pixels of the medical device replace a plurality of pixels of an image of an anatomy at a same location that the medical device is located within the anatomy, the plurality of pixels of the medical device having the same orientation that the medical device has within the anatomy.

Claim 19 (Previously Presented)   The system of claim 8, wherein the memory stores one of a plurality of geometric data, a plurality of image data, and a plurality of geometric data and a plurality of image data of the medical device.

Claim 20 (Currently Amended)   The system of claim 8, wherein the MRI low-level signal detection process adjusts the signal detection threshold to detect a low-level MRI signal produced from the target markers.

Claim 21 (Currently Amended)   The system of claim 20, wherein a non-adjusted signal threshold will one of disregard or fail to detect the low-level MRI signal produced from the target markers.

Claim 22 (Currently Amended)   The system of claim 8, wherein the MRI low-level signal detection process determines to recognize low-level MRI signals returned from the target markers upon a match from a comparison of known geometric data from the target markers with the returned low-level MRI signals.

Claim 23   (Currently Amended) A method comprising:

inserting a medical device into an anatomy, the medical device having a plurality of target markers;

storing geometric information for the plurality of target markers in a memory prior to insertion of the medical device into the anatomy;

scanning a magnetic resonance image (MRI) of the anatomy;

processing the scanned image by a MRI processor coupled to the memory;

determining a location and orientation of the medical device inserted in the anatomy in relation to the anatomy based on the plurality of target markers; and

displaying a precise image of the medical device within the anatomy, wherein MRI signals of the plurality of target markers within the anatomy are disregardable as noise or undetectable for MRI systems without using the stored information of the plurality of target markers prior to insertion of the medical device into the anatomy to lower an MRI signal detection threshold.

Claim 24 (Previously Presented)   The method of claim 23, further comprising:

pre-scanning the medical device before inserting the medical device into an anatomy; and

transmitting one of a plurality of geometric data, a plurality of image data, or a plurality of geometric data and a plurality of image data of the medical device and the plurality of target markers to the MRI processor.

Claim 25 (Original)   The method of claim 23, wherein the plurality of target markers comprise one of ferromagnetic and paramagnetic material.

Claim 26 (Currently Amended)   The method of claim 25, wherein <u>MRI signals of</u> the plurality of target markers are one of not detectable and disregarded by MRI systems operating between 0.2 and 5.0 Tesla.

Claim 27 (Original)   The method of claim 23, wherein the medical device is one of a fluid delivering catheter, a stent delivering device, a photographic device and a balloon catheter.

Claim 28 (Original)   The method of claim 27, wherein the medical device comprises a polymer material.

Claim 29 (Original)   The method of claim 27, wherein the medical device is expandable.

Claim 30 (Previously Presented)   The method of claim 23, further including superimposing a stored image of the medical device over an image of the anatomy, , the superimposed image having the same orientation and location that the medical device has within the anatomy.

Claim 31 (Previously Presented)   The method of claim 23, further including replacing a plurality of pixels of an image of an anatomy with a plurality of pixels of the medical device at the same location that the medical device is located within the anatomy, the plurality of pixels of the medical device having the same orientation that the medical device has within the anatomy.

Claim 32 (Previously Presented)   The method of claim 23, wherein the memory stores one of a plurality of geometric data, a plurality of image data, and a plurality of geometric data and a plurality of image data of a medical device and the plurality of target markers.

Claim 33 (Currently Amended)   The method of claim 23, wherein processing the scanned image further includes:
adjusting the signal detection threshold to detect a low-level <u>MRI</u> signal<u>s</u> produced from

the plurality of target markers, wherein if the signal detection threshold is unadjusted the low-level MRI signals produced from the plurality of target markers will be disregarded.

Claim 34 (Currently Amended)   An apparatus comprising a machine-readable medium containing instructions which, when executed by a machine, cause the machine to perform operations comprising:

storing geometric information for the a plurality of target markers of a medical device in a memory prior to insertion of the medical device into an anatomy;

scanning a magnetic resonance image (MRI) of an the anatomy with the medical device inserted into the anatomy;

processing the scanned image by a MRI processor coupled to the memory, the MRI processor having an MRI low-level signal detection process;

determining a location and orientation of the medical device in relation to the anatomy based on a the geometric information of the plurality of target markers; and

displaying a precise image of the medical device within the anatomy, wherein MRI signals of the plurality of target markers within the anatomy are undetectable or disregardable as noise for MRI systems without using the stored geometric information of the plurality of target markers prior to insertion of the medical device into the anatomy to lower an MRI signal detection threshold.

Claim 35 (Original)   The apparatus of claim 34, further containing instructions which, when executed by the machine, cause the machine to perform operations including:

pre-scanning the medical device before the medical device is inserted in an anatomy;

transmitting one of a plurality of geometric data, a plurality of image data, and a plurality of geometric data and a plurality of image data of a medical device and the plurality of target markers to the MRI processor; and

withdrawing a medical device from an anatomy at a dynamically adjusted pace.

Claim 36 (Original)   The apparatus of claim 34, wherein the plurality of target markers comprise one of ferromagnetic and paramagnetic material.

Claim 37 (Currently Amended)   The apparatus of claim 36, wherein the <u>MRI signals</u> <u>of the</u> plurality of target markers are one of not detectable and disregarded by MRI systems operating between 0.2 and 5.0 Tesla.

Claim 38 (Original)   The apparatus of claim 34, wherein the medical device is one of a fluid delivering catheter, a stent delivering device, a photographic device and a balloon catheter.

Claim 39 (Original)   The apparatus of claim 38, wherein the medical device comprises a polymer material.

Claim 40 (Original)   The apparatus of claim 38, wherein the medical device is expandable.

Claim 41 (Previously Presented)   The apparatus of claim 34, further containing instructions which, when executed by the machine, cause the machine to perform operations including:

superimposing an image of the medical device over an image of the anatomy, the superimposed image has the same location and orientation that the medical device has within the anatomy.

Claim 42 (Previously Presented)   The apparatus of claim 34, further containing instructions which, when executed by the machine, cause the machine to perform operations including:

replacing a plurality of pixels of an image of an anatomy with a plurality of pixels of the medical device, the plurality of pixels of the medical device having the same location and orientation that the medical device has within the anatomy.

Claim 43 (Previously Presented)   The apparatus of claim 34, wherein the memory stores one of a plurality of geometric data, a plurality of image data, and a plurality of geometric data and a plurality of image data of a medical device.

Claim 44 (Currently Amended)   The apparatus of claim 34, wherein the MRI low-level signal detection process adjusts the signal detection threshold to detect a low-level MRI signal produced from the target markers.

Claim 45 (Currently Amended)   An apparatus comprising a machine-readable medium containing instructions which, when executed by a machine, cause the machine to perform operations comprising:

storing geometric information for a plurality of target markers of a medical device in a memory prior to insertion of a the medical device into an anatomy;

scanning a magnetic resonance image (MRI) of the anatomy with the medical device inserted;

processing the scanned image by a MRI processor coupled to the memory, the MRI processor having an MRI low-level signal detection process;

determining a location and orientation of the medical device in relation to the anatomy based on detection of a the plurality of target markers in relation to the medical device and each of the plurality of target markers, wherein the plurality of target markers and geometric data of the medical device and the plurality of target markers is stored before the medical device is inserted into the anatomy; and

displaying a precise image of the medical device within the anatomy, wherein MRI signals of the plurality of target markers within the anatomy are undetectable or disregardable as noise for MRI systems without the MRI low-level signal detection process and without using the geometric information of the plurality of target markers to lower an MRI signal detection threshold.

Claim 46 (Currently Amended)   The apparatus of claim 45, wherein the MRI low-level signal detection process adjusts the signal detection threshold to detect a low-level MRI signal produced from the plurality of target markers.

Claim 47 (Currently Amended)   A system comprising:

a magnetic resonance imaging (MRI) processor, the processor including an MRI low-level signal detection process stored in a memory;

a MRI scanner coupled to the processor;

a control unit coupled to the processor;

a display coupled to the processor; and

a medical device to insert into an anatomy, the medical device having a plurality of target markers, wherein ~~detection~~ geometric information for the plurality of target markers is stored in the memory prior to insertion of the medical device into the anatomy, and wherein MRI signals of the plurality of target markers within the anatomy are undetectable or disregardable as noise for MRI systems without the MRI low-level signal detection process and without using the stored ~~detection~~ geometric information of the plurality of target markers to lower an MRI signal detection threshold, and wherein the ~~detection~~ geometric information includes geometric information of the medical device and each of the plurality of target markers to determine location and orientation of the medical device in relation to the anatomy.

Claim 48 (Currently Amended)   The system of claim 47, wherein the MRI low-level signal detection process adjusts the signal detection threshold to detect a low-level MRI signal produced from the target markers.

Claim 49 (Previously Presented)   The system of claim 48, wherein the geometric information of the medical device and a position of the detected plurality of target markers are used to display an image of the medical device superimposed on an image of an anatomy, the combined images representative of the actual location and orientation of the medical device in the anatomy.